Source Water Assessment Program (SWAP) Report for New Marlborough Central School

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

? Inventory land uses within the recharge areas of all public water supply sources;

? Assess the susceptibility of drinking water sources to contamination from these land uses; and

? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

Date Prepared: June 15, 2001

Table 1: Public Water System (PWS) Information

PWS Name	**New Marlborough Central School**
PWS Address	**44 Harstville - Hill Road**
City/Town	**New Marlborough, Massachusetts**
PWS ID Number	**1203011**
Local Contact	**Mr. William Cooper, Superintendent**
Phone Number	**413-229-8778**

Well Name	***Source ID#***	***Zone I (in feet)***	***IWPA (in feet)***	***Source Susceptibility***
Well 1	1203011-01G	100	421	High

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

New Marlborough Central School, an elementary school with a total staff and student population of approximately 100 people, is located immediately on the side of the road in a rural, residential setting. Well 1 is the sole source of water for the school and is on the northeast side of the school, within 5 feet of the school wall. The Zone I protective radius for Well 1 is 100 feet and the Interim Wellhead Protection Area (IWPA) radius is 420 feet. The protective radii were based on the average daily water use of 950 gallons per day (gpd) calculated from metered data for the maximum reported month. Please refer to the attached map that shows the Zone I and IWPA.

Well 1 is a 6-inch diameter well with the pump set at approximately 180 feet and is reportedly drilled to a final depth of 425 feet. There is no record of final construction of the well or of the materials encountered during drilling. Geologic mapping of the area

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

indicates the overburden material at the school consists of sand and gravel, stream terrace deposits but does not indicate the depth of the deposits. Because of the depth of the well, it is assumed to be a bedrock well. The bedrock is mapped as carbonate (limestone and dolomite) rocks of the Stockbridge Group. Bedrock wells drilled in these conditions are considered to be highly vulnerable to potential contamination from the ground surface because there is no significant barrier to prevent surface contamination from migrating into the bedrock aquifer.

Water Quality
The New Marlborough Central School well water does not require and does not have treatment at this time. For current information on monitoring results, please refer questions to the water supply contact listed above in Table 1.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:
1. **Non-conforming Activities in Zone I**
2. **An Underground Fuel Oil Storage Tank in IWPA**
3. **Parking, roadways and storm water catch basins**
4. **Floor Drain**

The overall ranking of susceptibility to contamination for the well is high, based on the presence of at least one high and several moderately ranked land use or activities in the IWPA, as seen in Table 2.

1. **Non-conforming Activities in Zone I –** Currently, the well does not meet DEP's restrictions that allow only water supply related activities in Zone I. The facility's Zone I contains school buildings, roads, parking areas, and septic system components. The public water supplier does not own all land encompassed by the Zone 1 and therefore has no control over some of the activities. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Fuel Storage Below Ground (UST)	No	Yes	High	Underground heating oil tank
Parking lot, storm drains, driveways & roads	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells. Maintain drains.
Athletic Field	No	Yes	Moderate	Continue policy of no fertilizer or pesticide usage. Passive recreation.
Septic System	No	Yes	Moderate	See septic systems brochure in the attachments
Low density residential w/septic systems	No	Yes	Moderate	See septic system/pesticide brochures in the attachments
Floor drain – Boiler Room and Gymnasium	Yes	No	Moderate	No hazardous materials stored in either room No additives to boiler.
Structures	Yes	Yes	-	Non-water supply activities in Zone I

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Recommendations:
- ✓ Do not conduct any new activities within Zone I.
- ✓ Do not use or store pesticides, fertilizers or deicing materials within the Zone I.
- ✓ If the existing threats cannot be mitigated, and pose increased threat, consider investigating an alternative site for a new well.

2. **Underground Fuel Oil Storage Tank (UST) –** The fuel oil storage tank was replaced in 1994 outside of the Zone I and was constructed in compliance with current requirements for double wall construction and leak detection. An UST in the IWPA containing petroleum products is a concern due to the potential threat posed by a release of large quantities of fuel.

Recommendations:
- ✓ Closely monitor activities associated with the fuel tank refilling and usage.
- ✓ Any further modifications to the UST must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding USTs.

3. **Parking, roadways and storm water catch basins –** Catch basins transport storm water from the roadway and adjacent properties to the ground. As flowing storm water travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents.

Recommendations:
- ✓ Direct stormwater drain outflows away from the Zone I and IWPA.
- ✓ Work with the Town to have to the catch basins inspected, maintained, and cleaned on a regular schedule. Additionally, street and parking lot sweeping reduces the amount of potential contaminants in storm runoff.

4. **Floor Drain** - The floor drain in the boiler room is required to protect the school from accidental plumbing failure. There are no hazardous materials stored in the boiler room and an outside contractor maintains the boiler. The janitor's room is adjacent to the boiler room. Although there are no hazardous materials stored there, the cleaning materials are kept in the room. Floor drains in the gymnasium and in the stairwell immediately outside of the boiler room are believed to be connected to the same drain. It is the understanding of the school personnel that the drain leads to a surface outlet but collapsed some time ago.

Recommendations:
- ✓ Install a shallow berm across the threshold between the janitor's room and the boiler room to prevent any accidental spills through the floor drain. Oil lines from the tank to the boiler can be sleeved so that any leaks would drain back to the tank or minimal oil would leak to the bermed boiler. A policy and plan should be in place during maintenance operations, especially when oil filters are changed. Request that your boiler maintenance contractor use containment, protect the drain and have absorbent materials on hand to prevent accidental leaks while conducting routine maintenance.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

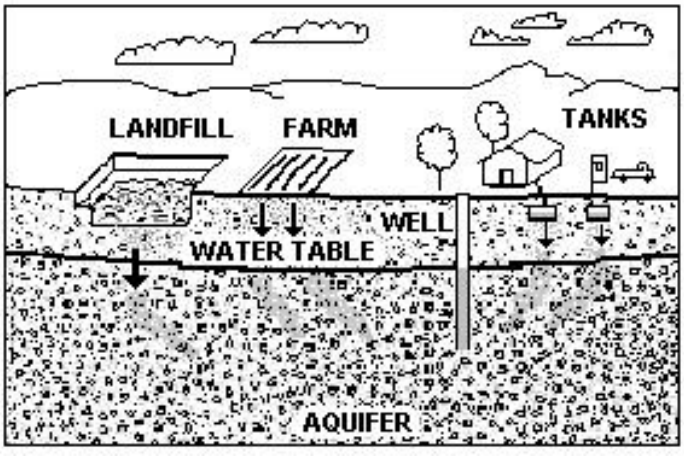

Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact Catherine V. Skiba in DEP's Springfield Regional Office at (413) 755-2119 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at: www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier, town boards, the town library and the local media.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. The staffs of the Southern Berkshire Regional School District and the New Marlborough Central School are commended for current protection measures. The New Marlborough Central School in conjunction with the district and local officials should review and adopt the key recommendations above and the following:

Priority Recommendations:

- ✓ Install a shallow berm between the janitor's room and the boiler room to prevent an accidental spill through the floor drain.

Zone I and IWPA:

- ✓ Keep any new non-water supply activities out of the Zone I.
- ✓ Monitor all non-compliant activities in the Zone I.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Prohibit public access to the well by locking facilities and posting signs.
- ✓ Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism, check area for accidental spills and leaks, etc.
- ✓ Maintain road and parking lot drainage and catch basins.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, and food preparation staff. Post labels as appropriate on raw materials and hazardous materials.
- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Incorporate groundwater education into school curriculum (K-6 curricula available; contact DEP for copies or other references).
- ✓ Work with your community to ensure that stormwater runoff is directed away from the well and is treated according to DEP guidance.

Facilities Management:

- ✓ Prohibit non-sanitary wastewater discharges to on-site septic systems. Post sinks as appropriate.
- ✓ Remove hazardous materials from rooms with floor drains that drain to the ground or septic systems; install a berm between the janitor's room and the boiler room.
- ✓ Implement Best Management Practices (BMPs) for the use of pesticides on facility property.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.
- ✓ Concrete wellhead protective pads should slope away from well and well casing should extend above ground.
- ✓ For utility transformers, including pole mounted transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Contact the utility if the area near the transformer has tree limbs that could endanger the transformer in a storm.

Planning:

- ✓ Work with local officials in New Marlborough to encourage the development of and implementation of Aquifer Protection Bylaws that would include the school's IWPA and to assist you in improving protection of your water supply. The Department can assist your community in developing wellhead protection bylaws.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.

- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers address Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Wellhead Protection Grant or the Source Water Protection Technical Assistance/Land Management Grant Program. For additional information, please refer to the attached program fact sheet. Please note that each program year, the Department posts a new Request for Response (RFR – grant application form) for the Grant programs on the internet on or about May 1. Responses are due on or about June 30. Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation" at http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

5. Attachments

- Map of the Public Water Supply (PWS) Protection Area
- Preparing a Wellhead Protection Plan
- Recommended Source Protection Measures Fact Sheet
- Your Septic System Brochure
- Pesticide Use Fact Sheet
- Fertilizer Fact Sheet
- Healthy Schools Fact Sheet
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form